

The Birds of St. Kitts, Lesser Antilles

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ABSTRACT.—We document certain or hypothetical records of 116 species of birds from the Lesser Antillean island of St. Kitts. Thirty species are reported from St. Kitts for the first time, most being migratory waterbirds and shorebirds. The resident avifauna features 23 species of landbirds. Two others are extirpated (*Athene cucularia*, *Loxigilla portoricensis grandis*), as are two aquatic species (*Dendrocygna arborea*, *Porphyrio martinica*). We provide systematic comments on the resident subspecies of *Butorides virescens*, *Charadrius wilsonia*, *Elaenia martinica*, and *Tyrannus dominicensis*.

INTRODUCTION

The purpose of this paper is to compile all the records of birds from the West Indian island of St. Kitts. These records are based on observations and museum specimens, both published and unpublished, covering a span of 110 years. Using mostly our own field data from the 1970's and 1980's, we describe the modern status and habitat preference of resident landbirds. Our historical review of land use patterns and ornithology on St. Kitts provides a foundation for future studies on the avifauna of this and nearby islands.

STUDY AREA

St. Kitts has an area of 176 km², centered at 17°19'N and 62°45'W in the northern Leeward Islands (Fig. 1). Along with St. Eustatius and Nevis, St. Kitts occupies a NW-SE trending submarine platform 80 km long × 16 km wide. This Cenozoic volcanic platform is part of the western arm of the northern Lesser Antillean arc (Martin-Kaye, 1969; Malfait and Dinkelman, 1972; Donnelly, 1989; Maury et al., 1990). The highest peak on St. Kitts is Mt. Liamuiga (formerly Mt. Misery) with an elevation 1156 m (3792 ft). This volcano originated in the Pleistocene and undoubtedly has been active in the Holocene. Although dormant,

Mt. Liamuiga still produces sulfuric gas-vents in its crater.

Most of the northern shoreline of St. Kitts consists of cliffs up to ca. 15 m high. The drainage pattern of northern St. Kitts is radial from the volcanic uplands. The resulting ravines (which generally are forested) are known as "ghauts" or "guts" and usually lack perennial streams. The Southeast Peninsula (SP) is a low, narrow ridge of older sedimentary and metamorphic rocks. The SP has several long beaches and six saline ponds. The largest pond is Great Salt Pond, up to 1.6 km in diameter. Other wetlands and ponds of SP cover 241 ha (Mills, 1988). The names Canada Pond and Greatheeds Pond are synonyms (see Danforth, 1934, 1936). In drought years, the smaller ponds dry up completely. Annual rainfall ranges from ca. 100 cm in the lowlands of the SP to 380+ cm in the upper elevations of Mt. Liamuiga. The major terrestrial habitats identified by Beard (1949) include five forest types: rain forest, dry evergreen forest, palm brake, elfin woodland, and dry scrub woodland. Evans (1990) and Wunderle and Waide (1994) provide general descriptions of terrestrial and aquatic habitats of the Northern Lesser Antilles. Figures 11.6 and 11.7 of Terborgh (1989) show the nearly completely deforested

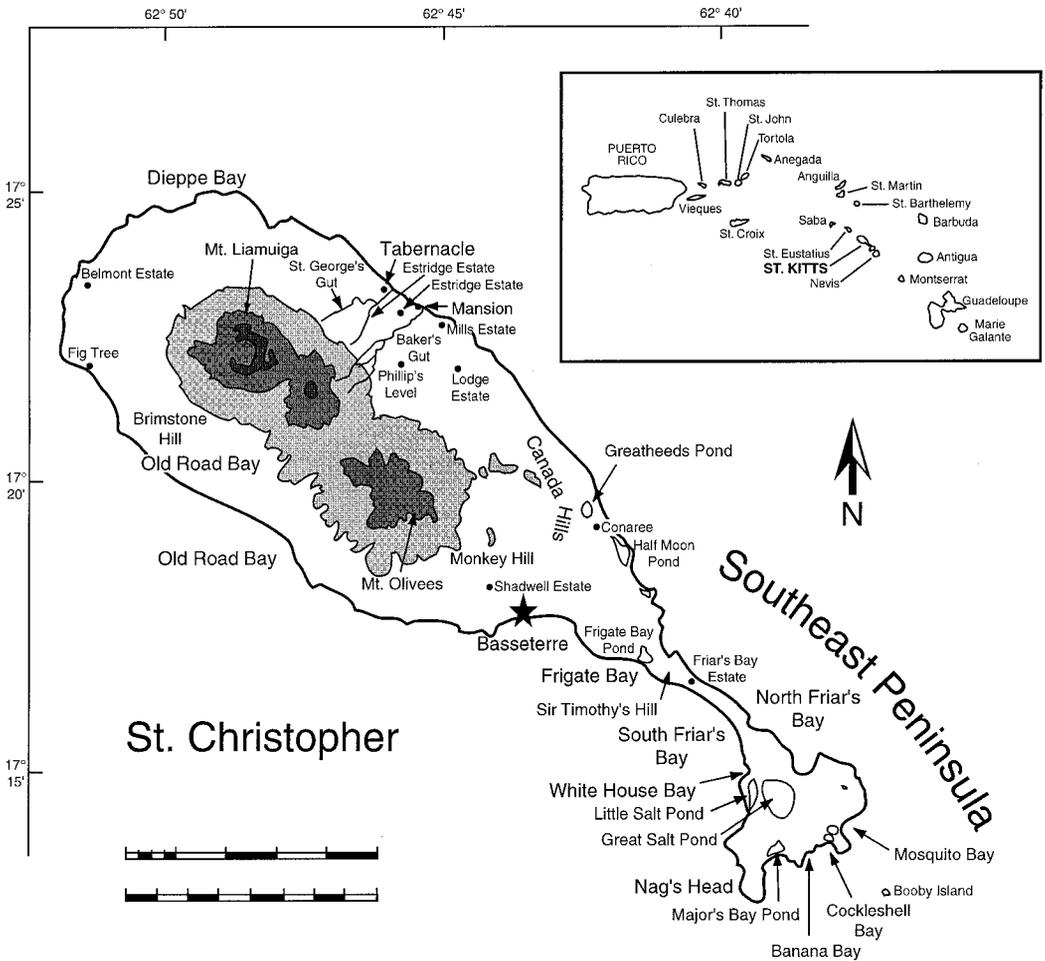


FIG. 1. St. Kitts, showing localities mentioned in the text. Shaded areas represent 1,000 ft. elevational contours.

coastal plain and partially forested uplands of St. Kitts.

LAND USE AND VERTEBRATE INTRODUCTIONS

Humans colonized St. Kitts (and other major islands in the northern Lesser Antilles) by ca. 2000 B.C. and perhaps earlier (Keegan and Diamond, 1987; Rouse, 1989; Pregill et al., 1994). Like other Lesser Antillean islands, St. Kitts was colonized again during ca. 500–900 A.D. by successive groups of Carib and Taino Amerindians, related to the Arawaks from South America, on their way to similar claims in the Greater Antilles and Bahamas (Rouse, 1989). Caribs occupied the island at European contact.

Although sighted and named by Columbus during his second voyage in 1493, St. Kitts, formally known as St. Christopher, was not settled by Europeans until the British arrived in about 1623. The British converted much of the island to agricultural land, dominated by sugar cane. St. Kitts became Britain's most productive Caribbean supplier of sugar. By 1838, a fluctuating sugar market led to economic chaos on the island, with abandoned lands reverting to second-growth forests. Nevertheless, much of St. Kitts remained cleared for sugar cane cultivation through the 19th century. Nicoll (1904:573) noted that the island "... has been almost entirely cleared for the cultivation of sugarcane, and this, coupled with

the introduction of the mongoose, has done much to make birds scarce."

The Forestry Ordinance of 1904 was enacted to prevent further deforestation and to encourage reforestation, decreeing that Crown lands above 300 m elevation be preserved for soil and water conservation. Thus the higher elevations on St. Kitts have been spared complete deforestation. Modern land use includes vast sugar plantations on arable lowlands, local market agriculture, tourism development (especially from Basseterre to Frigate Bay and the SP), fishing, and light manufacturing. The Wild Birds Protection Ordinance of 1913 banned hunting of 18 species of birds and provided a regulated hunting season for another nine species. The total of 27 apparently reflected the number of species known on the island at that time. The National Conservation and Environment Protection Act of 1987 provided additional protection for threatened species and habitats.

Non-native vertebrates have inhabited St. Kitts ever since human arrival. Excavated kitchen middens of the Taino and Carib indicate probable prehistoric introductions from South America, such as the red-footed tortoise (*Geochelone carbonaria*), green iguana (*Iguana iguana*), agouti (*Dasyprocta leporina*), and dog (*Canis familiaris*) (Wing, 1973; Johnson, 1988; Pregill et al., 1994).

Post-Columbian introductions of Old World mammals to St. Kitts include eight species transported virtually throughout the tropics, namely the house mouse, black and Norway rats, house cat, pig, goat, cow, and horse. Two other non-native species on St. Kitts are the African green monkey or vervet (*Cercopithecus aethiops*), brought by the French as a pet and established as a wild population since about the year 1700, and the small Indian mongoose (*Herpestes auropunctatus*), brought by the British from Jamaica in 1884 to reduce rat damage to sugar cane (Burdon, 1920; Fedigan et al., 1985; Chapman et al., 1987). The vervet and especially the mongoose undoubtedly have reduced populations of native amphibians, reptiles, and birds. New World species introduced in the early 20th century include the Common Bobwhite (*Colinus virginianus*), Carib Grackle (*Quiscalus lugubris*,

and white-tailed deer (*Odocoileus virginianus*).

HISTORY OF ORNITHOLOGY ON ST. KITTS

Historical observations and specimens of the birds of St. Kitts date to May 1880, when Frederick A. Ober visited the island for the United States National Museum, Smithsonian Institution (USNM). Ober collected the holotypes of *Butorides virescens christophorensis*, *Loxigilla portoricensis grandis*, and *Cinlocerthia ruficauda pavidus*. George Armstrong collected birds on St. Kitts for the Field Museum of Natural History (FMNH) in January 1888. Cyrus S. Winch collected on St. Kitts in early 1890, resulting in specimens deposited at FMNH and a published list of 24 species (Cory, 1891). M. J. Nicoll (1904) collected seven species and observed two others on St. Kitts on 12–15 February 1904. Nicoll's specimens reside in the British Museum (Natural History). G. K. Noble collected a few specimens for the Museum of Comparative Zoology, Harvard University (MCZ), in June 1914. J. L. Peters, also of the MCZ, collected 102 skins of birds (21 species, including 17 resident landbirds) on St. Kitts from 29 January to 6 April 1922. Five of these specimens were exchanged with the Carnegie Museum of Natural History. The Peters collection was not published (other than *Elaenia martinica*; Peters 1926). Barbour (1923) reported the reptiles collected by Peters on this trip, during which he also collected birds on St. Eustatius (97 specimens), Anguilla (76 specimens), and Nevis (26 specimens).

Stuart T. Danforth visited St. Kitts in July 1922, January 1931, August 1931, July 1933, and June 1935, collecting birds for USNM. His list of 63 species is derived from published and unpublished accounts of collectors and residents (Danforth, 1936). James Bond collected landbirds on St. Kitts for the Academy of Natural Sciences of Philadelphia (ANSP) in late December 1928 and early 1929 (Bond, 1929, 1936), and subsequently included these records in his Check-List of the Birds of the West Indies (1956). Paul Bartsch collected a specimen of *Loxigilla portoricensis grandis* for USNM in 1929 (Olson, 1984).

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collected birds on St. Kitts for the Louisiana State University Museum of Zoology (LSUMZ) in April 1962 (Schwartz and Klinnikowski, 1963, 1965). George W. Cox and Robert E. Ricklefs surveyed landbirds on St. Kitts from 23 June to 4 July 1972 and 14 to 20 August 1973 (Cox and Ricklefs, 1977; Ricklefs and Cox, 1977, 1978). In February 1975, John Faaborg mist-netted birds on St. Kitts in various habitats (Terborgh et al., 1978; Terborgh and Faaborg, 1980; Case et al., 1983; Faaborg, 1985). M. Ralph Browning (MRB) visited St. Kitts on 15–28 April 1977, observing 23 resident and 15 non-resident species, and collecting 21 specimens of 7 species for USNM. David W. Steadman (DWS), Ronald I. Crombie, and Ann Inderbitzin visited St. Kitts on 10–20, 23–25 February 1982, observing 26 resident and 21 non-resident species, and collecting 152 specimens (118 skeletons, 10 skins, 24 in alcohol) of 25 species for USNM.

Morris and Lemon (1984) observed several species and nesting activity previously unrecorded from St. Kitts. Wayne J. Arendt (WJA) surveyed vertebrates of the SP on 2–16 July 1985 (Arendt, 1985). Robert L. Norton (RLN) observed birds on St. Kitts during September–October 1988 and March 1989. Many of the shorebirds we report are a result of avian fall-out from the intense cyclonic activity of Hurricane Gilbert during mid-September 1988 (Haney et al., 1991; Wunderle et al., 1992). Pashley and Hamilton (1990) included St. Kitts in their review of specimens of parulid warblers from the Lesser Antilles.

METHODS

Each species account is headed by English and scientific names that follow the American Ornithologists' Union (1983 + supplements) unless otherwise stated. Comments on numerical status, taxonomy, morphology, and other topics are included for several species. Our evaluations of subspecies are based upon specimens examined by MRB. Specimens collected by F. A. Ober, P. Bartsch, S. T. Danforth (STD), MRB, and DWS are in the USNM collection unless otherwise stated. Specimen numbers are given only for unique or unusual specimens. For specimens collected in 1982, we

provide elevation, weight, and reproductive condition (OE = ovary enlarged, ONE = ovary not enlarged, OSE = ovary slightly enlarged, TE = testes enlarged, TNE = testes not enlarged, TSE = testes slightly enlarged, SU = sex unknown [alcohol specimens of sexually monomorphic species]). To the extent possible, sight records include the number of individual birds, location, and date, as summarized from the literature or our field notes (MRB in 1977, DWS in 1982, WJA in 1985, and RLN in 1988 and 1989). Initials are given for persons responsible for sight records that represent the first record of that species for St. Kitts. Our evaluation of the status of resident landbirds (Table 1) is based on observations by DWS in 1982. The category of "undisturbed" moist forest represents those tracts of forest with an unbroken canopy dominated by indigenous species of trees, some with a diameter (DBH) of >50 cm. Species that breed on St. Kitts are marked (*). Hypothetical species are in brackets.

SPECIES ACCOUNTS

Phaethon lepturus WHITE-TAILED TROPICBIRD. Sight record: 3 offshore from Basseterre 14 Feb 1982 (DWS). First record for St. Kitts.

Sula leucogaster BROWN BOOBY. Sight records: reported by Danforth (1936); 1 offshore from Basseterre 15 Feb 1982; 1 south of Nag's Head Jul 1985 (Arendt, 1985).

**Pelecanus occidentalis occidentalis* BROWN PELICAN. Specimens: two on 12–15 Feb 1904 (Nicoll, 1904). Sight records: abundant (Nicoll, 1904); large nesting colonies on the SE coast and to a lesser extent on Booby Island (Burdon, 1920); 1–5 birds daily in many places along the coast Feb 1982; breeding (56 nests w/nestlings) confirmed Nag's Head Jul 1985 (Arendt, 1985); 12 at Basseterre 22 Jul, 30 at Nag's Head roost 24 Jul, 20 at SP 24 Sep 1988.

**Fregata magnificens* MAGNIFICENT FRIGATEBIRD. Sight records: 2 at Basseterre 5 Aug 1931; 1 at Old Road Bay 13 Feb, 1 at Basseterre 14, 18 Feb 1982; breeding (9 nests w/nestlings) confirmed at Nag's Head Jul

TABLE 1. Habitat summary of resident (or formerly resident) landbirds on St. Kitts. C = common (recorded virtually every day in appropriate season, usually >5 individuals per day). U = uncommon (recorded less frequently than C, usually fewer individuals as well). E = extirpated. Habitat categories: UMF = undisturbed moist forest; DMF = disturbed, or edge of, moist forest; CAW = coastal or arid woodland; TF = towns or fields. — = not found in that habitat.

	UMV	DMF	CAW	TF
<i>Buteo jamaicensis</i> Red-tailed Hawk	U	U	U	U
<i>Falco sparverius</i> American Kestrel	—	U	U	U
<i>Columba squamosa</i> Scaly-naped Pigeon	C	U	U	—
<i>Zenaida aurita</i> Zenaida Dove	U	C	C	C
<i>Columbina passerina</i> Common Ground-dove	—	U	C	C
<i>Geotrygon mystacea</i> Bridled Quail-dove	C	U	—	—
<i>Coccyzus americanus</i> Yellow-billed Cuckoo	—	U	U	—
<i>Athene cunicularia</i> Burrowing Owl	—	—	E	—
<i>Eulampis jugularis</i> Purple-throated Carib	C	C	U	U
<i>Eulampis holosericeus</i> Green-throated Carib	U	U	U	U
<i>Orthorhynchus cristatus</i> Antillean Crested Hummingbird	C	C	C	C
<i>Cypseloides niger</i> Black Swift	U	U	U	—
<i>Elaenia martinica</i> Caribbean Elaenia	C	C	C	—
<i>Myiarchus oberi</i> Lesser Antillean Flycatcher	C	C	C	—
<i>Tyrannus dominicensis</i> Gray Kingbird	—	C	C	C
<i>Progne caribaea</i> Caribbean Martin	U	U	U	U
<i>Margarops fuscus</i> Scaly-breasted Thrasher	C	C	—	—
<i>Margarops fuscatus</i> Pearly-eyed Thrasher	C	C	—	—
<i>Cinclocerthia ruficauda</i> Brown Trembler	C	U	—	—
<i>Vireo altiloquus</i> Black-whiskered Vireo	C	C	C	—
<i>Dendroica petechia</i> Yellow Warbler	—	C	C	—
<i>Coereba flaveola</i> Bananaquit	C	C	C	U
<i>Euphonia musica</i> Antillean Euphonia	U	—	—	—
<i>Loxigilla portoricensis</i> Puerto Rican Bullfinch	E	—	—	—
<i>Loxigilla noctis</i> Lesser Antillean Bullfinch	C	C	C	U
Subtotals	12C 6U 1E	12C 10U —	10C 8U 1E	4C 7U —
Total species	19	22	19	11

1985 (Arendt, 1985); 12 at Nag's Head roost 24 Jul 1988.

**Ardea herodias* GREAT BLUE HERON. Sight records: 1 at Great Salt Pond 27 Jun 1935; 1 at Friar's Bay Estate salt ponds 14 Feb 1982; 1 at White House Bay 24 Mar 1989.

Ardea alba GREAT EGRET. Sight records: SP (Arendt, 1985); 18 at Frigate Bay salt pond 23 Oct 1988.

**Egretta thula* SNOWY EGRET. Sight records: 1 at Frigate Bay golf course 10, 18 Apr 1982 (Morris and Lemon, 1984); 1 at Nag's Head Jul 1985 (Arendt, 1985); 4 at Frigate Bay salt pond 23 Sep, 30 at Frigate Bay salt pond 23 Oct 1988.

**Egretta caerulea* LITTLE BLUE HERON. Specimen: USNM 556550, ad. male TNE, 386 gm, St. George's Gut, elev. 30 m, 12 Feb 1982. Sight records: reported by Danforth (1936); 2 at Mill's Estate 18, 22 Apr 1977; 1 at Estridge Estate 28 Apr 1977; 1 ad. at Frigate Bay salt pond 19 Feb, 1 ad. at Estridge Estate 23 Feb 1982; Friar's Bay golf course pond Apr 1982 (Morris and Lemon, 1984); 8 at Frigate Bay salt pond 22 Oct 1988.

**Bubulcus ibis* CATTLE EGRET. Sight records: Bond (*in* Arendt, 1988); 12 at Estridge Estate 15 Apr, 20 at Tabernacle 21 Apr 1977; abundant in any disturbed areas, especially pastures and other areas of low grass Feb 1982; reported by Morris and Lemon (1984) and Arendt (1985); 100 at Basseterre 22 Jul 1988.

**Butorides virescens maculatus* GREEN HERON. Specimens: ad. male and female, 1880, Ober; SU received MCZ May 1880, Branch; others by Winch 1890 (Cory, 1891). Sight records: 1 at Greatheeds Pond 3 Jan 1929 (Danforth, 1936); no data (Burdon, 1920). Use of the specific name *virescens* follows A.O.U. (1991) and Monroe and Browning (1992). The subspecific name *christophorensis* Oberholser, based on the male collected by Ober, is a synonym of *B. v. maculatus*, the short-winged subspecies breeding in the Antilles (Voous, 1983, 1986).

Palmer (1962), Blake (1977), and Voous (1983, 1986) recognized *B. v. maculatus* as a short-winged subspecies breeding in the

Antilles, whereas Payne (1974, 1979) synonymized *maculatus* with the nominate *virescens* of North America. The wing chords of about two-thirds of the specimens from the Antilles measured by Payne (1974) are shorter than the maximum (174 mm) reported for *maculatus* by Voous (1957); about one-third of the wing chords are within the range reported by Payne (1974) for eastern North American birds. Some of the long-winged birds from the Antilles may reflect that Payne (1974) regarded September specimens as breeding birds; North American birds are known to migrate in September (Palmer, 1962). The wing chord of 95% of breeding (late April to August) adult males from the Antilles ($n = 19$, USNM) that we measured are shorter than 174 mm, whereas 80% of males from the southeastern United States ($n = 10$, USNM) are longer than 174 mm. We also found that immatures from the Antilles have paler cheeks and adults have paler gray bellies than specimens from eastern North America. Although our sample sizes are small, we tentatively recognize *maculatus* for the resident Antillean populations, including that of St. Kitts.

**Nyctanassa violacea* YELLOW-CROWNED NIGHT-HERON. Specimen: bone from prehistoric archaeological site (Pregill et al., 1994); FMNH 33723 (the North American race *N. v. violacea*) by Winch 1890 (Cory, 1891). Sight records: nest w/3 chicks at Greatheeds Pond 3 Jan 1929, may pertain to *N. v. bancrofti* (Bond *in* Danforth, 1936); 1 at Greatheeds Pond 22 Jun 1935 and 25 Apr 1977; 1 at Half Moon Pond 25 Apr 1977; 2 at Greatheeds Pond 15 Feb, 2 on beach north of Fig Tree 18 Feb 1982; 2 at Friar's Bay golf course (Morris and Lemon, 1984); 11 inc. 3 juv., nesting colony near Great Salt Pond Jul 1985 (Arendt, 1985); 9 at Great Salt Pond 22 Oct 1988.

[*Nycticorax nycticorax* BLACK-CROWNED NIGHT-HERON. Listed as hypothetical by Danforth (1936). This species prefers fresh water habitats on smaller West Indian islands (pers. obs.) making it unlikely to occur regularly on St. Kitts.]

Dendrocygna arborea WEST INDIAN

WHISTLING-DUCK. Specimen: MCZ 29081, collected by F. Lagois, date unknown, received from A. Agassiz Jan 1881. Listed by Bond (1936) as of probable or casual occurrence. Burdon (1920) indicated that whistling ducks may have nested on St. Kitts.

[*Dendrocygna bicolor* FULVOUS WHISTLING-DUCK. Sight record: listed without details by Jackson (1981).]

Anas crecca GREEN-WINGED TEAL. Sight record: 2 at Friar's Bay Estate salt ponds 22 Oct 1988 (RLN). First record for St. Kitts.

Anas bahamensis WHITE-CHEEKED PINTAIL. Sight record: 2 near "Salt Pond" SP 27 Jun 1935 (Danforth, 1936).

Anas discors BLUE-WINGED TEAL. Sight records: reported without details by Jackson (1981); ca. 50 at Friar's Bay Estate salt ponds 14 Feb 1982; 11 at Friar's Bay Estate salt ponds 23 Sep, 80 at Friar's Bay Estate salt ponds 23 Oct 1988.

[*Aythya affinis* LESSER SCAUP. Sight record: reported without details by Jackson (1981).]

[*Oxyura jamaicensis* RUDDY DUCK. Listed by Bond (1936).]

Pandion haliaetus carolinensis OSPREY. Specimen: sex unknown, 1880, Ober. Sight records: 1 on 12–15 Feb 1904 (Nicoll, 1904); 1 at Friar's Bay Estate salt ponds 14 Feb 1982; 1 at SP Jul 1985, Arendt (1985); 1 at SP 23 Jul, 22 Oct 1988.

**Buteo jamaicensis jamaicensis* RED-TAILED HAWK. Specimen: FMNH 86231, Winch, Feb-Mar 1890 (Cory, 1891). Sight records: 2 at Canada Hills, Frigate Bay Jun 1935 (Danforth, 1936); 1 netted, Lodge's Estate 12 Feb 1975 (Terborgh and Faaborg, 1980); 2 at St. George's Estate 21 Apr 1977; 1 at St. George's Gut 12 Feb, 1 at Baker's Gut, Estridge Estate 13 Feb 1982; 2 at Friar's Bay Jul 1985 (Arendt, 1985); 2 at SP 23 Jul 1988.

**Falco sparverius caribaeorum* AMERICAN KESTREL. Specimens: male and sex unknown 1880, Ober; others by Winch 1890

(Cory, 1891) and Danforth (1936). Sight records: 1 at Estridge Estate 28 Apr 1977; 1 at Estridge Estate, 1 at Brimstone Hill 11 Feb 1982; Jul 1985 (Arendt, 1985); 2 at Basseterre 22 Jul 1988; 2 at SP 25 Mar 1989.

Falco columbarius MERLIN. Specimen: Winch 1890 (Cory, 1891), therefore listed by Bond (1936). Sight record: 1 at Belmont Estate 25 Mar 1989.

Falco peregrinus PEREGRINE FALCON. Sight record: 1 at White House Bay 22 Oct 1988 (RLN). First record for St. Kitts.

Colinus virginianus BOBWHITE. Non-native. Introduced (presumably in the late 19th century) and apparently extant until ca. 1920 (Burdon, 1920). Danforth (1936) listed *C. virginianus* as being long extirpated by the mongoose.

**Rallus longirostris* CLAPPER RAIL. Sight record: nested in "Eastern swamps" [=SP salt ponds] (Burdon, 1920). Listed by Bond (1956).

Porzana carolina SORA. Specimen: ANSP 86376, sex unknown, 3 Jan 1929, J. Bond; therefore listed by Bond (*in* Danforth, 1936), although without details.

Porphyryla martinica PURPLE GALLINULE. Specimen: bone from prehistoric archaeological site (Wing, 1973; Pregill et al., 1994).

**Gallinula chloropus* COMMON MOORHEN. Sight records: 3 nests at Greatheeds Pond 3 Jan 1929 (Bond *in* Danforth, 1936); Friar's Bay golf course pond Apr 1982 (Morris and Lemon, 1984); 4 at Friar's Bay 23 Sep 1988.

**Fulica americana* AMERICAN COOT. Sight record: 1 nest at Greatheeds Pond 3 Jan 1929 (Bond *in* Danforth, 1936).

Pluvialis squatarola BLACK-BELLIED PLOVER. Sight records: 5 at Frigate Bay salt pond 25 Jun 1935; 2 at Friar's Bay Estate salt ponds 14 Feb, ca. 100 at Half Moon Pond 15 Feb 1982; 6 at SP 24 Jul, 4 at SP 24 Sep 1988.

Pluvialis dominica LESSER GOLDEN-

PLOVER. Sight record: 1 at Little Salt Pond 24 Sep 1988 (RLN). First record for St. Kitts.

**Charadrius alexandrinus nivosus* SNOWY PLOVER. Specimens: LSUMZ, male and female, Half Moon Pond 17 Apr 1962, A. Schwartz. Sight records: Schwartz and Klinnikowski (1963); breeding (inc. juv. and 14 downy chicks) at Little Salt Pond 9 Apr 1982 and 7 (inc. downy chick) at Great Salt Pond 21 Apr 1982 (Morris and Lemon, 1984); 8 at SP Jul 1985 (Arendt, 1985); 3 at Little Salt Pond 24 Sep 1988.

**Charadrius wilsonia wilsonia* WILSON'S PLOVER. Specimens: male, 2 females, "salt pond" 1 Apr 1922, Peters; LSUMZ, female, Half Moon Pond, 17 Apr 1962, A. Schwartz; male TSE, 61 gm, female OSE, 62 gm Friar's Bay Estate salt ponds 14 Feb 1982. Sight records: Greatheeds Pond, Frigate Bay salt pond, Great Salt Pond Jun 1935; 8 others seen with those collected 14 Feb 1982; 3 at Frigate Bay Pond 23 Sep 1988.

Peters (1934), Johnsgard (1981), and Soothill and Soothill (1982) recognized *rufinucha* as the subspecies breeding in the West Indies, whereas Hellmayr and Conover (1948) and Blake (1977) synonymized *rufinucha* with the nominate *wilsonia* of North America. Peters (1917) concluded that *rufinucha* is darker above than *wilsoniana*. Wetmore and Swales (1931: 149) agreed, but noted that fading of specimens may complicate comparisons. Conover (1945), who did not recognize *rufinucha*, stated that a specimen from Texas and one from northern coastal Mexico were darker than specimens from the West Indies, but his comparative series were not collected in the same year. Fresh material from North America and the West Indies is required to reevaluate plumage color of the two populations. The status of *rufinucha* is complicated further by the possibility that the holotype of *C. w. rufinucha* (from the Bahamas) is a migrant from North America (Todd and Worthington, 1911).

Charadrius semipalmatus SEMIPALMATED PLOVER. Specimens: male, female, 1880, Ober. Sight records: 1 at Frigate Bay golf course 18 Apr 1982 (Morris and Lem-

on, 1984); 12 at SP Jul 1985 (Arendt, 1985); 33 at SP 24 Sep, 58 at SP 22 Oct 1988.

Charadrius melodus PIPING PLOVER. Sight record: 1 at Little Salt Pond 24 Sep 1988 (RLN). First record for St. Kitts.

Charadrius collaris COLLARED PLOVER. Sight record: 1 ad. at Conaree 25 Apr 1977 (MRB). First record for St. Kitts. Our record of this generally South American species is supported by sight records on St. Martin on 10, 19 Apr and 1 May 1973 (Voous, 1983: 250).

Haematopus palliatus AMERICAN OYSTERCATCHER. Sight record: 2 at Banana Bay 24 Sep 1988 (RLN). First record for St. Kitts.

**Himantopus mexicanus* BLACK-NECKED STILT. Specimen: MCZ 28760, SU, received MCZ 3 Nov 1880, Ober. Sight records: many at Frigate Bay salt pond, Great Salt Pond, and Greatheeds Pond 10 Aug 1931 and 7 Jun 1935, but not yet known to breed (Danforth, 1936); ca. 60 at Friar's Bay Estate salt ponds 14 Feb 1982; Friar's Bay golf course Apr 1982 (Morris and Lemon, 1984), breeding (3 pairs) photo-confirmed Jul 1985 (Arendt, 1985); 12 (inc. nest, eggs and chicks) at Major's Bay Pond 23 Jul and 174 on 24 Sep 1988.

Tringa melanoleuca GREATER YELLOWLEGS. Sight records: 1 at Great Salt Pond 25 Jun 1935; 3 at Friar's Bay Estate salt ponds 14 Feb 1982; 2 at SP 23 Jul, 4 at Frigate Bay salt pond 23 Sep, 9 at Little Salt Pond 24 Sep 1988; 7 at SP 25 Mar 1989.

Tringa flavipes LESSER YELLOWLEGS. Specimen: FMNH 99779, Winch 1890 (Cory, 1891). Sight records: 1 at Greatheeds Pond 10 Aug 1931; 3 at Friar's Bay Estate salt ponds 14 Feb, 3 at Greatheeds Pond 15 Feb 1982; Friar's Bay golf course pond (Morris and Lemon, 1984); 1 at SP Jul 1985 (Arendt, 1985); 8 at SP 23 Jul, 7 at Frigate Bay salt pond 23 Sep, 31 at Little Salt Pond, 42 at Mosquito Bay Pond, 160 at Major's Bay Pond 24 Sep, 221 at SP 22 Oct 1988; 103 at Great Salt Pond 24 Mar 1989.

Tringa solitaria SOLITARY SANDPIPER. Sight record: 1 at Great Salt Pond 22 Oct 1988 (RLN). First record for St. Kitts.

Catoptrophorus semipalmatus WILLET. Sight records: 1 at SP 23 Jul, 2 at Frigate Bay salt pond 23 Sep, 1 at Frigate Bay salt pond 23 Oct 1988; 2 (one in alternate, one in basic plumage) at Great Salt Pond 24 Mar 1989. Potentially breeds around Great Salt Pond where the habitat resembles that used by Willets nesting on Anegada (Norton et al., 1990), St. Croix (F. W. Sladen, pers. comm; RLN, pers. obs.), and Barbuda (WJA, pers. obs.).

Actitis macularia SPOTTED SANDPIPER. Sight records: 2 at Greatheeds Pond 10 Aug 1931 (Danforth, 1934); 1 at Friar's Bay Estate salt ponds 14 Feb 1982; 5 at SP 23 Jul 1988; 1 at SP 24 Mar 1989.

Numenius phaeopus WHIMBREL. Sight records: 8 at Mosquito Bay Pond 24 Sep, 6 at SP 22 Oct 1988 (RLN). First record for St. Kitts.

Limosa limosa BLACK-TAILED GODWIT. Sight record: 1 at Mosquito Bay Pond 24 Sep 1988 (RLN). First record for St. Kitts or anywhere in the West Indies. C. Faanes (in litt.) saw birds in cages on Barbados used as decoys in 1989 (Norton et al., 1990).

Arenaria interpres RUDDY TURNSTONE. Sight records: 20 at Greatheeds Pond 10 Aug 1931 (Danforth, 1934); 21 at Conaree 25 Apr 1977; 6 at Friar's Bay Estate salt ponds 14 Feb 1982; 4 at SP Jul 1985 (Arendt, 1985); 1 at SP 23 Jul, 17 at Frigate Bay salt pond 23 Sep 1988.

Calidris canutus RED KNOT. Sight records: 5 at Mosquito Bay Pond, 10 at Major's Bay Pond 24 Sep 1988 (RLN). First record for St. Kitts.

Calidris alba SANDERLING. Sight records: 3 at Conaree Beach 25 Apr 1977; 1 at Frigate Bay Beach 5 Apr 1982 (Morris and Lemon, 1984); 5 at Mosquito Bay Pond 24 Sep 1988.

Calidris pusilla SEMIPALMATED SANDPIPER. Sight records: 5 at Greatheeds Pond 10 Aug 1931, 2 at Frigate Bay salt pond 25 Jun 1935 (Danforth, 1936); 2 at Friar's Bay Estate salt ponds 14 Feb 1982; 30 at SP Jul 1985 (Arendt, 1985); 1 at SP 24 Jul, 253 at Little Salt Pond, 52 at Mosquito Bay Pond,

304 at Major's Bay Pond 24 Sep 1988; 183 at Great Salt Pond 24 Mar 1989, including a banded/flagged individual believed to be one of group banded by the Canadian Wildlife Service in the Bay of Fundy, Nova Scotia, summer 1988 (Nellie Tsipoura, pers. comm.).

Calidris mauri WESTERN SANDPIPER. Sight records: 12 at Little Salt Pond, 80 at Major's Bay Pond 24 Sep 1988 (RLN); 1 at Great Salt Pond 24 Mar 1989 (RLN). First records for St. Kitts.

Calidris minutilla LEAST SANDPIPER. Specimens: 1 at SP 12–15 Feb 1904 (Nicoll, 1904); USNM 556654, female ONE 18.6 gm, Friar's Bay Estate salt ponds 14 Feb 1982. Sight records: 17 at SP 24 Jul, 100 at Major's Bay Pond, 65 at Little Salt Pond 24 Sep 1988; 12 at Great Salt Pond 24 Mar 1989.

Calidris fuscicollis WHITE-RUMPED SANDPIPER. Sight records: 1 at Little Salt Pond 24 Sep, 8 at SP 22 Oct 1988 (RLN). First records for St. Kitts.

Calidris melanotos PECTORAL SANDPIPER. Sight records: 1 at Little Salt Pond 24 Sep, 83 at SP 22 Oct 1988 (RLN). First record for St. Kitts.

Calidris alpina DUNLIN. Sight record: 2 at Great Salt Pond 24 Mar 1989 (RLN). First record for St. Kitts.

Calidris himantopus STILT SANDPIPER. Sight records: 20 at Friar's Bay Estate salt ponds 14 Feb 1982; 48 at Little Salt Pond 24 Sep, 108 at SP 22 Oct 1988; 35 at Great Salt Pond 24 Mar 1989.

Limnodromus griseus SHORT-BILLED DOWITCHER. Sight record: 30 at Mosquito Bay Pond 24 Sep 1988 (RLN). First record for St. Kitts.

[*Limnodromus scolopaceus* LONG-BILLED DOWITCHER. Sight record: 1 at Great Salt Pond 24 Sep 1988 (RLN). Although carefully examined at close range, we regard this species as hypothetical because of difficulty in distinguishing it from *L. griseus*.]

Gallinago gallinago COMMON SNIPE. Sight records: reported by Danforth (1936); 1 at Great Salt Pond 22 Oct 1988.

Larus atricilla LAUGHING GULL. Specimen: USNM 80923, male 1880, Ober. Sight records: "common" (Danforth, 1936); 1 at Conaree Beach 25 Apr 1977; 8 at SP Jul 1985 (Arendt, 1985); 12 at Basseterre 22 Jul, 30 at Friar's Bay salt ponds 23 Sep, 6 at Basseterre 22 Oct 1988.

Larus delawarensis RING-BILLED GULL. Sight record: 1 (2nd yr. plumage) at Basseterre 22 Oct 1988 (RLN). First record from St. Kitts.

Larus argentatus HERRING GULL. Sight records: 1 (1st yr. plumage) at Basseterre 22 Oct, 1 at Frigate Bay salt pond 23 Oct 1988 (RLN). First record from St. Kitts.

Sterna maxima ROYAL TERN. Sight records: "a few" on 12–15 Feb 1904 (Nicoll, 1904:573); Danforth (1936); 3 at Basseterre 11 Feb 1982; 6 at Basseterre 22 Jul, 13 at SP 24 Sep, 12 at Basseterre 22 Oct 1988; 1 at White House Bay 25 Mar 1989.

Sterna dougallii ROSEATE TERN. Sight records: Basseterre 12 Aug 1931, 25 Jul 1933; Friar's Bay and Salt Pond 25 Jun 1935; 12 (inc. juv.) at White House Bay 24 Jul, 2 at SP 24 Sep 1988.

Sterna hirundo COMMON TERN. Sight records: Jul 1985 (Arendt, 1985); 2 at Banana Bay 24 Sep, 12 at Basseterre 22 Oct 1988.

**Sterna antillarum antillarum* LEAST TERN. Specimen: LSUMZ, male?, Half Moon Pond 17 Apr 1962, R. F. Klinikowski. Sight records: 30 pairs inc. eggs and chicks, nesting on dried edges of Canada Pond 25 Jun 1935 (Danforth, 1936); 5 nests w/1–2 eggs, 20 at Little Salt Pond, 1 nest at Mosquito Bay Beach, 16 pairs at Cockleshell Bay Jul 1985 (Arendt, 1985); 20 (inc. juvs.) at SP 23 Jul 1988.

Sterna fuscata SOOTY TERN. Sight records: 1 off S tip of SP 5 Aug 1931; 20 off Basseterre 25 Jul 1933 after a hurricane (Danforth, 1936).

Anous stolidus BROWN NODDY. Sight record: 10 from coast at Friar's Bay 25 Jun 1935 (STD).

**Columba livia* ROCK DOVE. Non-native. Introduced presumably in the 20th century.

Sight records: regularly at Basseterre 26 Mar to 29 Apr 1982 (Morris and Lemon, 1984); 3 at Basseterre 22 Oct 1988; 3 at Belmont Estate 25 Mar 1989.

**Columba squamosa* SCALEY-NAPED PIGEON. Specimens: USNM 556618, female ONE, 280 gm, St. George's Gut, elev. 150 m, 12 Feb 1982; USNM 556664, male TSE 355 gm, slope of Mt. Liamuiga, elev. 450 m, 17 Feb 1982. Sight records: 10 in cloud forest at Mt. Liamuiga crater 23 Jun, near Frigate Bay 25 Jun 1935; 6 at Estridge Estate 19 Apr, 6 at St. George's Estate, 1 at Phillip's Level 22 Apr, 4 at Mt. Liamuiga trail 26 Apr 1977; several seen/heard daily at Baker's Gut (Estridge Estate) Feb 1982; reported by Arendt (1985); 4 at SP 23 Jul 1988. Common in moist undisturbed forests of gulls and mountains. Rarely recorded on SP or in any disturbed habitats.

Columba leucocephala WHITE-CROWNED PIGEON. Sight records: 5 birds banded as squabs by G. A. Seaman in St. Croix, U.S. Virgin Islands, were shot in St. Kitts in Aug–Sep, various years from 1950–1960 (Norton and Seaman, 1985); not known to nest in St. Kitts.

**Zenaida aurita aurita* ZENAIDA DOVE. Specimens: male, 1880, Ober; 2 males, 18 Feb, 16 Mar 1922, Peters; Monkey Hill 21 Jun 1935 (Danforth, 1936); male TE 167 gm, female OSE, 144 gm, St. George's Gut, elev. 150 m, 12 Feb 1982; male TSE, 151 gm, Baker's Gut, 13 Feb 1982; male TE 148 gm, near Greatheeds Pond, 15 Feb 1982. Sight records: 8 at Estridge Estate 18 Apr, 3 at Tabernacle 26 Apr 1977; seen and heard daily in Feb 1982 at all localities except Mt. Liamuiga trail; Jul 1985 (Arendt, 1985); 14 at SP 23 Jul 1988. Very common and widespread. Seems to occur commonly in all habitats except in large tracts of undisturbed moist forest.

**Columbina passerina nigrirostris* COMMON GROUND-DOVE. Specimens: male, 1880, Ober; Winch 1890 (Cory, 1891); male 20 Jun 1914, Noble; female, male 21, 23 Mar 1922, Peters; holotype of *C. p. nigrirostris* collected 22 Jun 1935 and described by Danforth (1935); male TSE 38 gm Baker's Gut, elev. 65 m, 23 Feb 1982; male TSE 33

gm, female OSE 33 gm, St. George's Gut, elev. 30 m, 12 Feb 1982; male TNE 37 gm, Friar's Bay Estate, 14 Feb 1982. Sight records: 12 at Basseterre 18 Apr, 10 at Tabernacle 20 Apr, 12 at St. George's Gut 21 Apr, 14 at Conaree 25 Apr 1977; seen/heard daily Feb 1982 except in moist forest; 24 at SP Jul 1985 (Arendt, 1985); 13 at Great Salt Pond 24 Mar 1989. Very common in disturbed areas including canefields. Also occurs in rather open natural habitats such as dry scrub or coastal *Coccoloba-Hippomane*-mangrove woodlands. Not in undisturbed moist forest.

**Geotrygon mystacea* BRIDLED QUAIL-DOVE. Specimens: female 24 Mar 1922, Peters; specimen parts retrieved in 1934 from Mt. Liamuiga (Todd in Danforth, 1936); 1 by Biaggi on slope of Mt. Liamuiga crater (Danforth, 1936); male TE 235 gm, Baker's gut, elev. 65 m, 19 Feb 1982; male TE 226 gm, St. George's Gut, elev. 150 m, 12 Feb 1982. Sight records: 3 at Mt. Olivees 9 Aug 1931; 6 heard on slope of Mt. Liamuiga crater 25 Jun 1935 (Danforth, 1936); 5 netted, Lodge Estate 9–12 Feb 1975 (Terborgh and Faaborg, 1980); 2 at Estridge Estate, 18 Apr 1977; seen/heard daily Baker's Gut, St. George's Gut, and Mt. Liamuiga trail Feb 1982; 1 at NW slope trail, Mt. Liamuiga 25 Mar 1989. Common in moist, undisturbed forest of guts and mountains. Not observed at SP or in disturbed habitats.

[*Geotrygon montana* RUDDY QUAIL-DOVE. Listed by Danforth (1936) as hypothetical, based on a sight record only.]

**Coccyzus americanus* YELLOW-BILLED CUCKOO. Sight records: Danforth (1936) heard an unknown species of cuckoo near a salt pond 27 Jun 1935; frequent and vocal 14–20 Aug 1973 (R. Ricklefs in Bond, 1980); 4 at Little Salt Pond to Great Salt Pond 22 Oct 1988.

Athene cucularia BURROWING OWL. Formerly widely distributed in the northern Lesser Antilles with historic and/or prehistoric records from Barbuda, Antigua, Redonda, Marie Galante, Nevis, and presumably the SP of St. Kitts (A.O.U., 1983; Steadman et al., 1984a; Pregill et al., 1988, 1994). No specimens are known, however, from St.

Kitts. Bond (1940, 1956) stated that Philip Todd observed the species on St. Kitts but no details were provided. Predation from the introduced mongoose may be responsible for the loss. We follow Eck and Busse (1973), A.O.U. (1976), Olson and Hilgartner (1982), and Voous (1988) in synonymizing (*contra* A.O.U., 1991) *Speotyto* with *Athene*.

Streptoprocne zonaris COLLARED SWIFT. Sight record: 2 at summit of Mt. Liamuiga 26 Apr 1977. Our record of this uncommon visitor is supported by a sight record (3 birds) from Saba in 1969 (Voous, 1983: 261) and from Vieques (off Puerto Rico; 1 bird) on 21 July 1971 (Kepler, 1972).

[*]*Cypseloides niger* BLACK SWIFT. Sight records: 12 at Estridge Estate 18 Apr, 4 at summit of Mt. Liamuiga 26 Apr 1977; 1 at SP 23 Jul 1988. Listed without comment for St. Kitts by Bond (1979).

**Eulampis jugularis* PURPLE-THROATED CARIB. Specimens: male, female, 1880, Ober; 10 Winch 1890 (Cory, 1891); 4 males, 3 females 18–22 Mar 1922, Peters; 2 SU 7.2 gm, 8.0 gm, Brimstone Hill, 11, 15 Feb, SU 8.0 gm St. George's Gut 12 Feb, 7 SU 6.7, 7.7, 8.7, 9.6, 10.6, 10.8, 10.8 gm, Baker's Gut 14, 16, 18, 23, 24 Feb, 2 males TSE 9.9, 10.2 gm female ONE 9.0 gm, Baker's Gut, elev. 65 m, 18 and 19 Feb 1982; female OSE 9.5 gm, St. George's Gut, elev. 150 m, 16 Feb 1982. Sight records: 25 netted, Lodge Estate 9–12 Feb 1975 (Terborgh and Faaborg, 1980); 6 at Estridge Gut 17 Apr, 3 at St. George's Gut 21 Apr 1977; 1–5 daily at Baker's Gut, St. George's Gut, Mt. Liamuiga trail, Brimstone Hill Feb 1982; 1 at NW slope Mt. Liamuiga 25 Mar 1989. Alcohol specimens from St. Kitts of *E. jugularis* and the next two species were among those used in the myological studies of Zusi and Bentz (1984). Common and widespread, although prefers forested areas more than the other two species of hummingbird.

**Eulampis (Sericotes) holosericeus holosericeus* GREEN-THROATED CARIB. Specimens: 2 males, 1 female, 1 SU, 1880 (Ober); 1 Winch 1890 (Cory, 1891); 1 on 12–15 Feb 1904 (Nicoll 1904); 4 males, female, female? 29 Jan–25 Mar 1922, Peters; reported by Danforth (1936); male TSE 5.9 gm, 2 SU, 5.2

gm, no weight, Brimstone Hill, elev. 90 m, 11, 15 Feb 1982; male 6.1 gm, 0.7 km W of Dieppe Bay, elev. 18 m, 13 Feb 1982; female ONE 6.1 gm, Fig Tree, sea level, 18 Feb 1982. Sight records: 4 netted, Lodge Estate 11–12 Feb 1975 (Terborgh and Faaborg, 1980); 1 at Conaree 25 Apr, 1 at Estridge Estate 28 Apr 1977; seen many locations, heard almost daily Feb 1982; 2 at SP Jul 1985 (Arendt, 1985). Less common than the other two species of hummingbird. Prefers sparsely wooded habitats such as flowering trees in pastures or coastal stands of *Coccoloba* (seagrape).

**Orthorhynchus cristatus exilis* ANTILLEAN CRESTED HUMMINGBIRD. Specimens: nest and egg, 1880 Ober; male received MCZ 3 Nov 1880, Ober; 2 males MCZ 26 Dec 1887, 3 Jan 1888, Armstrong; 25 by Winch in 1890 and 14 by G. Armstrong in 1887 (Cory, 1891); 3 males 21–25 Mar 1922, Peters; 6 males TNE 3.1 gm, TNE 3.2 gm, TSE 3.3 gm, TNE 3.7 gm, TSE 3.8 gm, TSE 3.9 gm, SU 2.5 gm, Brimstone Hill, elev. 9 m, 11, 15 Feb 1982; male TNE 3.7 gm, female ONE 4.2 gm, 3 SU 2.6, 2.8, 4.4 gm, Baker's Gut, elev. 200 m, 13, 16, 19 Feb 1982; 2 SU 2.6, 2.7 gm, St. George's Gut, elev. 9 m, 12 Feb 1982; male TNE 2.7 gm, 0.7 km W of Dieppe Bay, elev. 18 m, 13 Feb 1982; male TNE 4.0 gm, Fig Tree, 18 Feb 1982. Sight records: reported by Danforth (1936); 8 netted, Lodge Estate 10–11 Feb 1975 (Terborgh and Faaborg, 1980); 4 at Estridge's Gut 19 Apr, 4 at elfin forest, Mt. Liamuiga 26 Apr 1977; 5–15 seen/heard daily in many locations Feb 1982; 6 at Great Salt Pond Jul 1985 (Arendt, 1985); 3 at NW slope Mt. Liamuiga 25 Mar 1989. The most common and widespread species of hummingbird, found at all elevations and in any habitat with trees.

[*Megaceryle torquata stictipennis* RINGED KINGFISHER. Listed doubtfully by Peters 1945:166.]

Megaceryle alcyon BELTED KINGFISHER. Specimen: Winch 1890 (Cory, 1891). Sight records: 1 at Old Road Bay 13 Feb, 1 at Friar's Bay Estate salt ponds 14 Feb 1982; 1 at Frigate Bay salt pond 23 Sep 1988.

**Elaenia martinica rissii* CARIBBEAN

ELAENIA. Specimens: male 1880, Ober; 1 Winch 1890 (Cory, 1891); 8 males, 4 females 16 Feb–23 Mar 1922 (Peters, 1926); sex unknown, 25 Jul 1929, P. Bartsch; 4 by Danforth (1936); female Mansion 18 Apr, male Tabernacle 21 Apr, male NW slope Mt. Liamuiga, elev. 810 m, 21 Apr 1977; 3 males TNE 20.8, 21.4, 23.7 gm, St. George's Gut, elev. 150 m, 12, 16 Feb 1982, male TSE 20.7 gm, Friar's Bay Estate 14 Feb 1982; male TNE 24.0 gm, Baker's Gut 16 Feb 1982. Sight records: 3 netted, Lodge Estate 9–11 Feb 1975 (Terborgh and Faaborg, 1980); 5 at St. George's Gut 21 Apr, 2 at elfin forest, Mt. Liamuiga 26 Apr 1977; 2–10 seen/heard daily in many locations Feb 1982; 64 netted in 6 days, SP Jul 1985 (Arendt, 1985); 6 at SP 24 Mar 1989. Fairly common in all forested areas, including SP.

Peters (1926) and Hellmayr (1927) identified birds from St. Kitts as nominate *E. m. martinica*. Traylor (1979), who did not specifically mention St. Kitts, stated that the range of *E. m. martinica* was Saba and St. Eustatius. Our comparison of 123 specimens confirms the findings of Schwartz and Klinikowski (1963, 1965) and Voous (1957) that specimens from Puerto Rico to St. Kitts and Antigua (*E. m. rissii*) are smaller and paler than those of *E. m. martinica*, which inhabits Montserrat through Grenada.

**Myiarchus oberi berlepshii* LESSER ANTILLEAN FLYCATCHER. Specimens: female 1880, Ober; 1 Winch 1890 (Cory, 1891); 4 males, 12 Mar, 6 Apr 1922, Peters; 3 Mt. Liamuiga, 23 Jun 1935 (Danforth, 1936); male TNE 31 gm, female ONE 33 gm, St. George's Gut, elev. 150 m, 16 Feb 1982; female ONE 35 gm, slope of Mt. Liamuiga, elev. 450 m, 17 Feb 1982. Sight records: 3 netted, Lodge Estate 9–10 Feb 1975 (Terborgh and Faaborg, 1980); 4 at Estridge's Gut 17 Apr, 9 at lower (open) part of Mt. Liamuiga trail 26 Apr 1977; aside from collected specimens, seen in arid forest of SP Feb 1982; 52 netted in 3 days, SP Jul 1985 (Arendt, 1985); 1 at SP 23 Sep 1988, 8 at NW slope Mt. Liamuiga 25 Mar 1989. Fairly common in all forested areas. Recognition of *M. oberi* follows Lanyon (1967), *contra* Bond (1979).

**Tyrannus dominicensis dominicensis* GRAY KINGBIRD. Specimens: 4 males, 2 females 15–21 Mar 1922, Peters; SU, 25 Jul 1929, Bartsch; male, female, Mansion, elev. 300 m, 18 Apr, female, Mansion, elev. 330–450 m, 19 Apr 1977; female ONE 51 gm, male TSE 50 gm, female ONE 46 gm, St. George's Gut 12, 15, 16 Feb 1982; 2 females ONE 42, 45 gm, 2 males TNE 42, 47 gm, Baker's Gut, elev. 210 m, 14, 16, 23 Feb, male TNE 41 gm, SU 45 gm, Friar's Bay Estate 14 Feb 1982. Sight records: breeding (nest w/3 fledglings) Greatheeds Pond 28 Jun 1935 (Danforth, 1936); 1 netted, Lodge Estate 11 Feb 1975 (Terborgh and Faaborg, 1980); 16 at Estridge Estate 18 Apr 1977; daily in open areas Feb 1982; 4 at SP Jul 1985 (Arendt, 1985); 17 at SP 24 Mar 1989. Common and widespread in open areas, even agricultural lands with occasional trees. Uses forest edge, but not found within moist forest.

Specimens from St. Kitts belong to nominate *dominicensis*, the pale gray subspecies (Traylor, 1979). Although recognition of *vorax*, from Barbuda, Antigua, and Montserrat, was questioned by Haberman et al. (1991), we found that specimens from those islands are consistently darker gray above and on the upper breast than birds from St. Kitts and elsewhere in the Antilles. We disagree with the conclusion of Haberman et al. (1991) that morphologically similar migratory and non-migratory populations of pale *T. dominicensis* should be considered separate subspecies. Although those authors assigned *vorax* to the non-migratory group, *T. d. vorax* is at least partially migratory (Voous, 1983).

**Progne caribaea* CARIBBEAN MARTIN. Specimens: 1 Winch 1890 (Cory, 1891); Mt. Olivees 9 Aug, Brimstone Hill 10 Aug 1931, Basseterre 21, 22, 29 Jun 1935 (Danforth, 1936); 2 summit of Mt. Liamuiga 26 Apr 1977. Sight records: 8 (colony) at Nag's Head Jul 1985 (Arendt, 1985); 2 at Basseterre Jul 22, 5 at Great Salt Pond 23 Jul 1988. An uncommon nesting species, *P. caribaea* seems to vacate the island from approximately October to March.

Hirundo rustica BARN SWALLOW. Sight records: several at Canada Pond 3 Jan 1929 (Bond in Danforth, 1936); 7 at St. George's

Gut 21 Apr 1977; ca. 300 at Greatheeds Pond 15 Feb 1982; 10 at Frigate Bay salt pond 23 Sep 1988.

Hirundo pyrrhonota CLIFF SWALLOW. Sight record: 2 at Estridge Estate cane field 19 Apr 1977 (MRB). First record for St. Kitts.

Catharus fuscescens VEERY. Sight record: 1 netted and released, Estridge's Gut 19 Apr 1977 (MRB). First record for St. Kitts.

**Margarops fuscus hypenemus* SCALY-BREADED THRASHER. Specimens: female, 1880, Ober (sent to Naturhistorische Rikamuseum, 1930); 1 Winch 1890 (Cory, 1891); 3 males, 2 females 16–24 Mar 1922, Peters; 2 Mt. Olivees, Monkey Hill, Mt. Liamuiga crater (Danforth, 1936); LSUMZ, male 1.5 mi SW Lodge Estate, 18 Apr 1962, A. Schwartz; female, Estridge Estate, 18 Apr 1977; 9 males TNE 72, 72, 73 gm, TSE 64, 64, 64 gm, TE 64, 69, 74 gm, female OSE 69 gm, Baker's Gut, elev. 20–27 m, 11, 13, 15, 17, 18, 23 Feb 1982; female ONE 65 gm, St. George's Gut, elev. 150 m, 12 Feb 1982. Sight records: 30 netted, Lodge Estate 9–12 Feb 1975 (Terborgh and Faaborg, 1980); 6 at Estridge's Gut 17 Apr 1977; seen/heard daily in many moist forest sites Feb 1982; 1 at NW slope Mt. Liamuiga 25 Mar 1989. Common only in moist forest.

Specimens from St. Kitts and other islands in the Northern Lesser Antilles belong to *M. fuscus hypenemus*, a large and pale brown-backed subspecies described by Buden (1993). The LSUMZ specimen is the holotype of *M. f. hypenemus*.

**Margarops fuscatus fuscatus* PEARLY-EYED THRASHER. Specimens: female, 1880, Ober; 2 females 16 Feb, 15 Mar 1922, Peters; female, Mansion, 18 Apr 1977; female, Phillip's Level, elev. 450 m, 22 Apr 1977; male, Tabernacle, elev. 300 m, 26 Apr 1977; 12 males TNE 92, 95, 95, 95, 100, 101, 105, 123 gm, TSE 105 gm, TE 104, 104 gm, 3 females ONE 115, 116 gm OSE 108 gm, Baker's Gut, elev. 20 m, 11, 12, 14–18, 24 Feb 1982; 2 males TE 105, 114 gm, slope of Mt. Liamuiga, elev. 450 m, 17 Feb 1982; 2 females ONE 102 gm, OSE 115 gm, St. George's Gut, 16 Feb 1982. Sight records: abundant, Mt. Liamuiga, Mt. Olivees, and Mon-

key Hill (Danforth, 1936); 18 netted, Lodge Estate 9–11 Feb 1975 (Terborgh and Faaborg, 1980); 10 at St. George's Gut 21 Apr, 11 at Mt. Liamuiga trail 26 Apr 1977; seen/heard daily in many moist forest sites Feb 1982; 5 at NW slope Mt. Liamuiga 25 March 1989. Common only in moist forest.

**Cinlocerthia ruficauda tremula* BROWN TREMBLER. Specimens: USNM 80925, male, holotype of *C. r. pavida* Ridgway, 1880, Ober; MCZ 28759, male, received MCZ 3 Nov 1880, Ober; Winch 1890 (Cory, 1891); male TNE 56 gm, SU 59 gm Baker's Gut, elev. 20 m, 19, 23 Feb 1982. Sight records: by Bond at Mt. Liamuiga, but not observed by Danforth (1936); 11 netted, Lodge Estate 9–12 Feb 1975 (Terborgh and Faaborg, 1980); 2 at Estridge's Gut 17 Apr 1977; 4 groups (all silent) NW slope Mt. Liamuiga, elev. 450–750 m, 17 Feb 1982; 1 at NW slope Mt. Liamuiga 24 Jul 1988. Uncommon in forested guts. Common only in upper elevation moist forest. We follow Storer (1989) in synonymizing *C. r. pavida* with *C. r. tremula*. The Brown Trembler, from Saba to St. Vincent, is specifically distinct from *C. guttaralis* (Gray Trembler) of Martinique and St. Lucia (Storer, 1989; A.O.U., 1991).

**Vireo altiloquus barbadensis* BLACK-WHISKERED VIREO. Specimens: 1 Winch 1890 (Cory, 1891); female 20 Jun 1914, Noble; 9 males, 1 female 16 Feb–1 Apr 1922, Peters; nest w/3 eggs, Basseterre 28 Jun 1935; 2 males, Tabernacle, elev. 150 m, 21 Apr 1977; male TNE 22.0 gm, St. George's Gut, elev. 150 m, 16 Feb 1982; male TNE 22.0 gm, slope of Mt. Liamuiga, elev. 450 m, 17 Feb 1982; female ONE 20.3 gm, SU 21.2 gm, Baker's Gut, elev. 200 m, 19, 23 Feb 1982. Sight records: 3 at St. George's Gut 21 Apr, 4 at Conaree mangroves 25 Apr 1977; seen/heard daily in many localities Feb 1982; 79 netted in 6 days SP Jul 1985 (Arendt, 1985); 5 at SP 23 Jul 1988; 6 at SP 24 Mar, 6 at NW slope Mt. Liamuiga 25 Mar 1989. Common and widespread in any forested area, regardless of elevation, canopy height, etc. As common on SP as in moist forest.

Parula americana NORTHERN PARULA. Specimens: 4 Winch 1890 (Cory 1891); mul-

tiple specimens 12–15 Feb 1904 (Nicoll 1904); female 20 Mar 1922, Peters; female ONE 7.3 gm, male TNE 9.2 gm, Baker's Gut 12, 19 Feb 1982. Sight records: "very numerous" 12–15 Feb 1904 (Nicoll 1904:573); 5 netted, Lodge Estate 11 Feb 1975 (Faaborg 1985); 1 at Estridge's Gut 18 Apr 1977.

**Dendroica petechia bartholemica* YELLOW WARBLER. Specimens: 2 males received MCZ May 1880, W. J. Branch; male received MCZ 3 Nov 1880, Ober; 1 Winch 1890 (Cory, 1891); multiple specimens 12–15 Feb 1904 (Nicoll, 1904); 7 males, 3 females 18–25 Mar 1922, Peters; nest w/2 young and egg, Greatheeds Pond 28 Jun 1935; SU 10.4 gm, Baker's Gut, elev. 27 m, 13 Feb 1982; 2 males TE 12.5, 12.7 gm, 2 females ONE 12.0, 12.8 gm, Sir Timothy Hill, elev. 10 m, 19 Feb 1982. Sight records: "very common amongst the thick bushes on the shore" in 12–15 Feb 1904 (Nicoll, 1904: 573); 2 (*aestiva* subspecies group) at St. George's Gut 21 Apr, 185 (*petechia* subspecies group) at Conaree mangroves 25 Apr 1977; common daily in many localities Feb 1982 (e.g., ca. 50 of *petechia* species group at Friar's Bay Estate 14 Feb 1982); 11 at SP 23 Jul 1988; 10 at SP 24 Mar 1989. Common and widespread in coastal forest/woodland of *Hippomane-Acacia-Waltheria-Cocos* (with or without *Coccoloba* or mangrove), dry forest of SP, and secondary or very patchy forest in or near guts. Not found in undisturbed moist forest or in strictly agricultural areas.

Two subspecies groups of Yellow Warblers occur in St. Kitts: the resident *petechia* group (to which *D. p. bartholemica* belongs) and the wintering/migrant *aestiva* group that breeds in North America (see review in Browning, 1994). Individuals observed that represent the *aestiva* group could not be identified to subspecies.

Dendroica tigrina CAPE MAY WARBLER. Specimen: USNM 571406, male TNE 9.5 gm, Brimstone Hill 15 Feb 1982 (DWS). First record for St. Kitts.

Dendroica caerulescens BLACK-THROATED BLUE WARBLER. Sight record: 1 netted, Lodge Estate 10 Feb 1975 (Terborgh and Faaborg, 1980).

Dendroica discolor PRAIRIE WARBLER.

Specimens: 3 Winch 1890 (Cory, 1891; Danforth, 1936).

Dendroica striata BLACKPOLL WARBLER. Sight record: 15 at SP 22 Oct 1988 (RLN). First record for St. Kitts.

Mniotilta varia BLACK-AND-WHITE WARBLER. Specimens: CMNH 10517, Winch 1890 (Cory, 1891; Danforth, 1936); MCZ 93174, male 16 Feb 1922, Peters; USNM 571404, male TNE 10.6 gm, St. George's Gut 16 Feb 1982.

Setophaga ruticilla AMERICAN RED-START. Specimens: 14 Winch 1890 (Cory, 1891; Danforth, 1936), female 16 Mar 1922, Peters. Sight records: 1 netted, Lodge Estate 12 Feb 1975 (Terborgh and Faaborg, 1980); 1 at Estridge's Gut 19 Apr, 2 at Phillip's Levell 22 Apr 1977.

Seiurus aurocapillus OVENBIRD. Specimen: MCZ 93183, female 15 Mar 1922, Peters.

Seiurus noveboracensis NORTHERN WATERTHRUSH. Specimens: USNM 671398, female 15.7 gm, USNM 671399, male TNE 17.8 gm, Baker's Gut 17, 18 Feb 1982. Sight records: 1 at Friar's Bay mangroves 23 Sep 1988; 2 at Great Salt Pond mangroves 22 Oct 1988.

Seiurus motacilla LOUISIANA WATERTHRUSH. Sight record?: listed by Hellmayr from St. Kitts (Danforth, 1936).

Wilsonia citrina HOODED WARBLER. Sight record: 1 at Estridge's Gut 19 Apr 1977 (MRB). First record for St. Kitts.

**Coereba flaveola dominicana* BANANA-QUIT. Specimens: 1 Winch 1890 (Cory, 1891); 1 on 12–15 Feb 1904 (Nicoll, 1904); 7 males, 3 females 15–20 Mar 1922, Peters; SU, 25 Jul 1929, Bartsch; 5, nest w/3 hatchlings, Greatheeds Pond, 28 Jun 1935 (Danforth, 1936); 2 females, male Mansion, 20, 26 Apr 1977; 5 males TNE 11.5 gm, TE 9.2, 10.1, 10.4, 10.8, 13.0 gm, 3 females ONE 8.7, 10.8 gm, OSE 11.7 gm, SU 11.9 gm, Baker's Gut, elev. 20 m, 13, 14, 17, 19 Feb 1982; 2 females ONE 9.1, 10.2 gm, St. George's Gut, elev. 150 m, 12 Feb 1982; male TE 11.6 gm, female ONE 11.0 gm, SU 11.8 gm, Brimstone Hill, elev. 90 m, 11, 13 Feb 1982. Sight

records: 52 netted in 4 days Lodge Estate 9–12 Feb 1975 (Terborgh and Faaborg, 1980); seen/heard daily in many locations in Feb 1982; 7 netted in 6 days SP Jul 1985 (Arendt, 1985); 11 at SP 23 Jul 1988. Common and widespread in any sort of forest, including SP. Tolerant of considerable forest disturbance, but not found in heavily cultivated areas.

**Euphonia musica* ANTILLEAN EUPHONIA. Specimen: MCZ 28407, male, before May 1880, W. J. Branch. Sight record: RLN heard at least one singing "wheeeoo" (unlike the call of *Myiarchus oberi*) constantly in the forest canopy at ca. 535 m elev., NW slope of Mt. Liamuiga, 25 Mar 1989. Aside from St. Kitts, the range of *E. musica* in the northern Lesser Antilles comprises Saba, St. Barts, Barbuda, Antigua, and Montserrat (A.O.U., 1983; Bond, 1988; Evans, 1990). This species is rare on most of these islands.

Piranga olivacea SCARLET TANAGER. Sight record: 3 at Estridge's Gut 18 Apr 1977 (MRB). First record for St. Kitts.

**Tiaris bicolor omissa* BLACK-FACED GRASSQUIT. Specimens: 1 Winch 1890 (Cory, 1891); multiple specimens 12–15 Feb 1904 (Nicoll, 1904); 4 males, 2 females 16–23 Mar 1922, Peters; 6 by Danforth (1936); 2 males TSE 8.7 gm, TE 8.7 gm, SU 9.4 gm, Baker's Gut 14, 15 Feb 1982; SU 9.7 gm, Friar's Bay Estate 14 Feb 1982. Sight records: "commonest bird seen at St. Kitts" (Nicoll, 1904:573); 5 netted, Lodge Estate 11 Feb 1975 (Terborgh and Faaborg, 1980); 13 at Conaree Beach 25 Apr 1977; 5 netted in 3 days SP Jul 1985 (Arendt, 1985); 14 at SP 23 Jul 1988. Common. Found in all habitats except large tracts of moist forest. Most abundant in semi-open areas, whether natural or anthropogenic. Tolerant of more habitat modification than *Coereba flaveola* or *Loxigilla noctis*.

Loxigilla portoricensis grandis PUERTO RICAN BULLFINCH. Specimens: USNM 80930 (holotype) ad. female (see Deignan, 1961: 612), USNM 80929 juv. male, USNM 80928 ad. male, AMNH 41226 ad. male, AMNH 129120 ad. male, FMNH 9067 ad. male, FMNH 9068 ad. male, FMNH 9069

ad. female, FMNH 9070 ad. male, 1880, Ober; USNM 318207, sex unknown, Mt. Liamuiga, 26 Jul 1929, Bartsch. Lawrence (1881) described an adult female collected by Ober as the holotype of *L. grandis*, but did not designate an individual specimen as the holotype.

Neither Winch in 1890 or Nicoll in 1904 collected *L. p. grandis*. Burdon (1920) reported that it was nearly extinct. This bullfinch was last collected in 1929 by Bartsch, a fact overlooked until pointed out by Olson (1984). Bond in 1929 and Danforth during 1922 and 1931 to 1935 both failed to locate *L. p. grandis*, the decline of which has been attributed to predation by the introduced monkey (Bond, 1936, 1956, 1988; Lack, 1976: 153). Unaware of the specimen collected in 1929, Raffaele (1977) concluded that two major hurricanes in August 1899 had caused the extinction of *L. p. grandis*, noting that the monkey and bullfinch had co-existed since the monkey's introduction to St. Kitts in the mid-1600's.

Olson (1984) noted that the apparent restriction of *L. p. grandis* to montane forests was probably an artifact of deforestation in the lowlands. Olson also questioned whether *L. p. grandis* was truly confined to St. Kitts, a prophetic query recently answered by DWS's discovery of a rostrum of *L. p. grandis* in a prehistoric bone deposit from Barbuda (Pregill et al., 1994). Raffaele (1989: 179–180) continued to favor hurricanes over monkeys as a cause of the extinction of *L. p. grandis* on St. Kitts.

We believe that the loss on St. Kitts of the Lesser Antillean race of the Puerto Rican Bullfinch, *L. p. grandis*, probably was due to a combination of: 1, habitat loss (especially for sugar cane cultivation over the past four centuries), exacerbated by forest-damaging hurricanes; and 2, predation by non-native mammals, including monkeys, mongoose, cats, and rats. These factors undoubtedly have acted in concert, with habitat damage and loss leading to greater vulnerability from predators. Furthermore, we believe (*contra* Raffaele, 1977, 1989; Raffaele and Roby, 1977) that there would have been little competitive interaction between *L. p. grandis* and *L. noctis coryi* when they coexisted in the northern Lesser Antilles.

**Loxigilla noctis coryi* LESSER ANTILLEAN BULLFINCH. Specimens: 2 males, 1880, Ober; Winch 1890 (Cory, 1891); 2 males 20 June 1914, Noble; 5 males, 4 females 29 Jan–18 Mar 1922, Peters; 2 SU, 25 Jul 1929, Bartsch; common, many nests Jun 1935 (Danforth, 1936); 2 males, female, Mansion, elev. 300–450 m, 19 Apr 1977; 2 males, Tabernacle, elev. 300 m, 21 Apr 1977; male TNE 16.2 gm, TSE 17.0 gm, female OSE no weight, St. George's Gut, elev. 150 m, 12, 16 Feb 1982; 8 males TNE 18.7, 19.2 gm, TSE 15.8, 16.0, 17.1, 17.6, 18.5, 20.1 gm, 3 females ONE 13.7 gm, OE 12.8, 17.5 gm, 3 SU 17.1, 17.8, 19.5 gm, Baker's Gut 10–15, 17, 23, 24 Feb 1982; female ONE 13.5 gm 0.7 km W of Dieppe Bay 13 Feb 1982; 2 females ONE 16.8, 17.4 gm, Brimstone Hill 15 Feb 1982. Sight records: 94 netted in 4 days Lodge Estate 9–12 Feb 1975 (Terborgh and Faaborg, 1980); 20 at Estridge Estate 18 Apr, 25 at St. George's Gut 21 Apr, 2 at elfin forest of Mt. Liamuiga 26 Apr 1977; seen/heard daily in many locations Feb 1982; 64 netted in 6 days SP Jul 1985 (Arendt, 1985); 8 at NW slope of Mt. Liamuiga 25 Mar 1989. Fairly common to common in all forested areas. Perhaps most abundant in second growth, patchy forests and their edges, and the arid woodlands of SP.

Dolichonyx oryzivorus BOBOLINK. Sight record: 2 at Great Salt Pond 22 Oct 1988 (RLN). First record for St. Kitts.

Quiscalus lugubris CARIB GRACKLE. Non-native. Sight records: Danforth (1936) stated that a grackle (species undetermined) seen in Basseterre on 5 Jan 1931, had been introduced in about 1912, although did not know its place of origin. During subsequent visits, i.e., 1935, he could not locate grackles. Bond (1963) suggested that *Q. l. fortirostris* was introduced to St. Kitts around 1912–1914, when it was also introduced to Barbuda and Antigua. The St. Kitts record is not listed in Bond (1988). In fact, Burdon (1920) stated that 41 'Barbados Blackbirds' (= *Q. l. fortirostris*) were imported in 1897 to the immediate vicinity of Camp Estate and multiplied to about 100 or so by 1920. G. W. Cox (*in* Bond, 1973) reported *Q. lugubris* to be "not uncommon" in open country on St. Kitts, al-

though it was not reported for St. Kitts by Morris and Lemon (1984), Arendt (1985), nor did we locate grackles during our visits.

Icterus galbula BALTIMORE ORIOLE. Sight record: 1 male near Shadwell Estate, Basseterre 22 Apr 1982 (Morris and Lemon, 1984).

DISCUSSION

We have documented the certain, probable, or former occurrence of 116 species of birds on St. Kitts. These consist of 113 indigenous species (at least 41 currently or formerly breeding on the island) and three non-native species. Of the 72 native, non-resident species, 22 are seabirds, waterfowl, or other aquatic species, 26 are shorebirds, seven are non-passerine landbirds, and 17 are passerines. Additional field work could add to these totals. Like other Lesser Antillean islands, St. Kitts supports fewer species of Neotropical migrants during the winter than the larger islands of the Greater Antilles. The only such species that occur regularly and commonly on St. Kitts are Northern Parula, Black-and-White Warbler, American Redstart, and Northern Waterthrush.

The avifauna of St. Kitts is typical for an island in the northern Lesser Antilles. Each resident landbird (Table 1) occurs (or did occur) on one or usually many of the nearby islands. The habitats on St. Kitts include elfin and rain forest at Mt. Liamuiga, moist lowland forest (largely confined to steep gullies), coastal and arid (Southeast Peninsula) woodland/forest, croplands, salt ponds, beaches, and rocky coasts. The habitat preferences of the resident landbirds are summarized in four rather broad categories (Table 1). Each of the 25 species occurs (or did occur) in one or more of the three forest categories. (Lack [1976:385] listed only 21 species of resident landbirds from St. Kitts, his total differing from ours by not including the Burrowing Owl, Yellow-billed Cuckoo, Black Swift, and Antillean Euphonia.) For the 16 species regarded as common in one or more habitats, only four are found in category TF (towns or fields). Fewer species overall are found in

TF than any other category, and no species are restricted to TF. Forests, even in small patches, seem to be essential for most species.

The only species of bird known on St. Kitts exclusively from a prehistoric context is the Purple Gallinule (Wing, 1973). Nevertheless, anthropogenic habitat changes over two or more millennia undoubtedly have depleted the avifauna of St. Kitts, just as on nearby Antigua, Barbuda, and Montserrat (Steadman et al., 1984a, 1984b; Watters et al., 1984; Pregill et al., 1988, 1994). During the period of European and African influence, habitat changes and vertebrate introductions have led to the loss on St. Kitts of at least the West Indian Whistling-Duck, Burrowing Owl, and Puerto Rican Bullfinch. Other species almost certainly have been lost on St. Kitts, an island that lacks records of, for example, species of parrots, barn-owls, mockingbirds, or resident thrushes.

Species that may require conservation attention to maintain populations on St. Kitts are the Brown Trembler (extirpated on Antigua and Barbuda, at least in part as a result of habitat loss; Steadman et al., 1984a; Pregill et al., 1994), Antillean Euphonia (if it still exists in the montane forests), and various summer resident seabirds and shorebirds of the SP, such as the Roseate Tern, Least Tern, Snowy Plover, and Willet.

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